Patent claims

1. A molding composition, comprising a mixture of interpenetrating polymers with a first phase of a crosslinked isobutene polymer and with a second phase of a reinforcing polymer which comprises (meth)acrylic and/or vinylaromatic units, where the first phase comprises the reaction product of an isobutene polymer with an average of at least 1.4 functional groups in the molecule and of a crosslinking agent with an average of at least two functional groups in the molecule, the functionality of these being complementary to that of the functional groups of the isobutene polymer.

2. The molding composition according to claim 1, where the ratio by weight of the first phase to the second phase is from 5:95 to 80:20.

3. The molding composition according to claim 1 or 2, where the isobutene polymer comprises at least 80% by weight of isobutene units.

4. The molding composition according to any of the preceding claims, where the functional groups of the isobutene polymer have been arranged exclusively at the ends of the isobutene polymer molecule.

5. The molding composition according to any of the preceding claims, where the isobutene polymer has a number-average molecular weight of from 500 to 50 000 prior to the crosslinking process.

6. The molding composition according to any of the preceding claims, where the crosslinking agent has an average of at least 2.5 functional groups.

7. The molding composition according to any of the preceding claims, where the functional groups of the isobutene polymer and of the crosslinking agent have been selected in pairs from hydroxy/isocyanate groups or olefinically unsaturated groups/hydrosilyl groups.

8. The molding composition according to any of the preceding claims, where the reinforcing polymer comprises styrene units and/or methyl methacrylate units.

9. The molding composition according to any of the preceding claims, where the reinforcing polymer comprises units of a crosslinking monomer.

10. The molding composition according to claim 8 or 9, in which the ratio by weight of the first phase to the second phase is from 5:95 to 25:75, for use as impact-modified polystyrene or polymethyl methacrylate.

11. A process for preparing a molding composition according to claim 1, in which (i) the monomers which form the structure of the reinforcing polymer are

polymerized by a free-radical route in the presence of the first phase, or
(ii) the isobutene polymer, the crosslinking agent, and the monomers which form the structure of the reinforcing polymer are mixed, and the reaction between the isobutene polymer and the crosslinking agent and the free-radical polymerization of the monomers are initiated simultaneously or in succession.

12. The use of the molding composition according to claim 1 for producing materials or moldings for the roofing of buildings.

13. A process for the bonding of at least two moldings composed of a molding composition according to claim 1, in which
(i) a curable mixture composed of an isobutene polymer defined in claim 1 and of a crosslinking agent defined in claim 1 is prepared,
(ii) the mixture is brought into contact with those surfaces of the moldings that are to be bonded, and
(iii) the mixture is permitted to cure fully.